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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 030,133	03/19/2002	Matthias Fryda	P21932	8161

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EXAMINER

KIKNADZE, IRAKLI

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 06/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,133

Applicant(s)

FRYDA ET AL

Examiner

Irakli Kiknadze

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1. ☐ Notice of References Cited, PTO-892
2. ☐ Notice of Draftsperson's Patent Cooperation Treaty (PCT) Application
3. ☐ Notice of Draftsperson's Patent Cooperation Treaty (PCT) Application
4. ☐ Interview Summary, PTO 413, Paper No. _____

DETAILED ACTION***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 20-26, 32, 33 and 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sahores (US Patent 4,159,37) in view of Imai et al. (US Patent 5,173,612).

With respect to claims 17 and 37, Sahores discloses (Fig. 1) an X-ray anode for microfocus sources comprising: a window (3) having a thickness in a range of 300 μm to 2000 μm , an anode (11) material is located on the window (3) (column 4; lines 6-44).

With respect to claims 20 - 23, Sahores discloses (Fig. 1) that the X-ray anode (11) material is a metal and the anode (11) material thickness is between 2 μm and 4 μm . (column 4; lines 45-49).

With respect to claims 24 - 26 and 41, Sahores discloses that the x-ray anode material (11) completely or partially covers a surface of the window (3) (column 4; lines 18-24).

With respect to claims 32 and 33, Sahores discloses that the x-ray anode (11) is structured and arranged for use in x-ray units (column 1; lines 5-14).

With respect to claims 35, 36 and 38-40 Sahores discloses that the anode material is located

With respect to claims 35, 36 and 38-40 Sahores discloses that the window (3) which is made of a thin shell may be made of any material which is transparent to the X-ray radiation.

Art Unit: 2882

obviously that material can be a diamond too. Further, with respect to claims 17, 20-26, 32, 33 and 35-41 Imai et al. discloses (see abstract) an X-ray diamond window for X-ray apparatus employed for high transparency for X-rays, high flatness, and high strength (column 1; lines 5-15).

With respect to claims 18 and 19, Imai discloses that X-ray window can be a polycrystalline or monocrystal diamond window (column 1, line 65 – column 2, line 20).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to employ the X-ray window made from diamond as taught by Imai in the Sahores invention, in order to achieve high transparency for X-rays for the X-ray window with high flatness, and high strength. Further, it has been held to be an obvious matter within the general skill of a worker in the art to select a known material (in present case using diamond for the X-ray window material) on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

3. Claims 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sahores (US Patent 4,159,37) in view of Imai et al. (US Patent 5,173,612) and in further view of Diemer et al. (US Patent 4,622,688).

With respect to claims 27-29, Sahores in view of Imai show generally all elements of the invention except disclosing that an intermediate layer is provided between the X-ray anode and the X-ray window. Diemer discloses (Fig.3) an X-ray tube (1) comprising an X-ray anode (13) and an X-ray exit window (6) and an intermediate layer (12) is provided between the X-ray anode (13) and the X-ray window (6) (column 3; 27-50). The intermediate layer may be a radiation filter. Diemer X-ray apparatus is suitable for use in an X-ray analysis apparatus, which is constructed to demonstrate the presence in a specimen of element having a low atomic number. Further, it is stated that it is unnecessary to change the X-ray tube during the execution of a complete analysis (column 3, lines 50-65).

It would have been obvious to one ordinary skill in the art at the time of the invention was made to provide the transmission X-ray tube comprising the intermediate layer between the X-ray anode and the X-ray window, as taught by Diemer in order to selectively produce an X-ray beam containing a comparatively large amount of long -wave as well as short wave radiation, without affecting the outside construction, shape and useful properties of the X-ray tube.

4. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sahores (US Patent 4,159,37) in view of Imai et al. (US Patent 5,173,612) and in further view of Kitade et al. (US Patent 5,809,106).

With respect to claims 30 and 31, Sahores in view of Imai show generally all elements of the invention except disclosing a temperature sensor for the X-ray apparatus. Kitade discloses an X-ray anode (40) and a temperature sensor to sense with a high-accuracy and prevent X-ray radiation conditions, such as local melting from being caused to the X-ray anode (column 13, line 64 – column 14, line 21). It would have been obvious to one ordinary skill in the art at the time of the invention was made to employ the temperature sensor for the X-ray apparatus, as taught by Kitade in order to monitor temperature and allow the X-ray radiation always be done under safe, high-accuracy and high-efficiency conditions.

5. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sahores (US Patent 4,159,37) in view of Imai et al. (US Patent 5,173,612) and in further view of Smith et al. (US Patent 6,241,651 B1).

With respect to claim 34, Sahores in view of Imai show generally all elements of the invention except disclosing that the anode material is made of tungsten. Smith et al. disclose an anode made of tungsten, which is an endurable metal, which can be deposited in the form of thin film either by physical or chemical deposition techniques, further, the anode is formed by a thin film of tungsten.

Art Unit: 2882

material, to obtain a certain surface roughness (column 4; lines 5-30). It would have been obvious to one ordinary skill in the art at the time of the invention was made to employ the tungsten anode for the radiation source, as taught by smith in Sahores in view of Imai invention in order to provide established source of X-rays.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is (703) 305-6464. The examiner can normally be reached on M-F(8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

April 30, 2003

Irakli Kiknadze

